UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,153	07/20/2001	Yoichi Mizuno	16869N-029300US	4313

20350 7590 06/04/2004		EXAMINER
TOWNSEND AND TOWNSEND AND CREW, LLP		BAKER, PAUL A
TWO EMBARCADERO CENTER		

ART UNIT	PAPER NUMBER
2188	

EIGHTH FLOOR
SAN FRANCISCO, CA   94111-3834

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 February 2004</u>.
2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.
   4a) Of the above claim(s) *2-13* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1,14-18* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17 and 18 recite the limitation "said first LUN" in lines 3 and 6 of claim 17

and line 3 of claim 18. There is insufficient antecedent basis for this limitation in the

claim. Claim 1 discloses both an inner and outer LUN, claims 17 and 18 do not indicate

which of these two LUNs "said first LUN" refers to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Stallmo US Patent 5,875,456.

In regards to claim 1, Stallmo discloses a computer system with a storage

system having reconfigurable logical volumes comprising:

a storage system comprising a plurality of inner logical volumes (figure 19

element 502) and an LU controller to control said inner logical volumes (figure 2

element 206)); and

a management console to communicate instructions to change a logical volume

configuration of said logical volumes figure 2 element 202,

said LU controller comprising a LUN map designating a correlation an outer LUN,

one or more inner LUNs, said outer LUN designating an outer logical volume, each of

said inner LUNs designating one of said inner logical volumes whereby said outer

logical volume can be associated with one or more said inner logical volumes in figure

19 Block Group 0, Blocks 0-1000, Blocks 1001-5000, Blocks 5001-7000,

wherein in response to receiving an instruction to change said logical volume

configuration, said LU controller is configured such that it modifies said LUN map to

correlate a first outer LUN with a second inner LUN, said first outer LUN being

previously correlated with a first inner LUN in figure 11, wherein a computer designated

by first computer ID detects a change in said logical volume configuration so that said

computer can subsequently access an inner logical volume designated by said second

inner LUN by way of said first outer LUN, by way of figure 19 as administered by

controller in figure 2 element 206.

Stallmo does not disclose there are a plurality of computers connected his

disclosed system. However it is well known in the art the use of centralized storage

system as disclosed by Stallmo for use by a plurality of networked computers, for the

purpose of providing fault tolerant storage for multiple computers at a reduced cost.

Therefore the examiner takes official notice.

In regards to claim 14, each of said plurality of computers searches an outer volume by using an outer LUN is not disclosed by Stallmo, however given the common practice of multiple computers accessing a centralized storage system it would have been obvious for a computer to search an outer volume by using an outer LUN since applicant discloses an outer LUN designating an outer logical volume thus establishing a one to one correspondence and hence an equivalence.

In regards to claim 15, Stallmo discloses said outer logical volume designated by said first outer LUN is expanded into a storage area including inner logical volumes designated by said first inner LUN and said second inner LUN in figure 20.

In regards to claim 16, Stallmo discloses said instruction to change a logical volume configuration includes said first inner LUN and said second inner LUN in figure 20.

In regards to claim 17, Stallmo discloses in figure 20 said instruction to change a logical volume configuration includes said first LUN and a requested size, said storage system and said LU controller configured such that if a free storage area having a size larger than the sum of said requested size and the size of an inner logical volume designated by said first LUN exists in said storage system, then said storage system copies data stored in said inner logical volume to said free storage area and said LU controller rewrites said LUN map to correlate said free storage area with said second

inner LUN and to correlate said second inner LUN with said first outer LUN and with

said first computer ID in elements 2002-2010.

In regards to claim 18, Stallmo discloses in figure 20 said instruction to change a

logical volume configuration includes said first LUN and a requested size, wherein said

LU controller is configured such that if a free storage area exists which has a size that is

larger than said requested size plus the size of said inner logical volume designated by

said first inner LUN, then said LU controller copies data stored in said inner logical

volume designated by said first inner LUN to said free storage area, and rewrites said

LUN map to correlate said free storage area with said first outer LUN, with said first

computer ID, and with said second inner LUN, said second LUN being associated with

said free storage area, wherein said LU controller is further configured such that if such

a free storage area does not exist in said storage system, then said LU controller

rewrites said LUN map to correlate said first outer LUN with said logical volume

designated by said first LUN and with any free storage area in said storage system in

elements 2002-2010.

Response to Arguments

The examiner interprets Stallmo, US Patent 5,875,456 figure 19, is the equivalent

of applicant's disclosed inner and outer LUNs. Each block group is an instance of

Stallmo's outer LUN and the blocks contained within the block group are the inner

LUNs.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Paul A Baker whose telephone number is (703)305-

3304. The examiner can normally be reached on M-F 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mano Padmanabhan can be reached on (703)306-2903. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

PB

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER